

## PATENT COOPERATION TREATY

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## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

REC'D 28 JUL 2004

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Applicant's or agent's file reference AJFW:MC:FP18499	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416).
International Application No. PCT/AU2003/001280	International Filing Date (day/month/year) 29 September 2003	Priority Date (day/month/year) 27 September 2002
International Patent Classification (IPC) or national classification and IPC Int. Cl. <sup>7</sup> G01K 11/32		
Applicant CRC FOR INTELLIGENT MANUFACTURING SYSTEMS & TECHNOLOGIES LTD et al		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 3 sheets, including this cover sheet.
- ☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).
- These annexes consist of a total of sheet(s).
3. This report contains indications relating to the following items:
- I ☒ Basis of the report
  - II ☐ Priority
  - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
  - IV ☐ Lack of unity of invention
  - V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
  - VI ☐ Certain documents cited
  - VII ☐ Certain defects in the international application
  - VIII ☐ Certain observations on the international application

Date of submission of the demand March 2004	Date of completion of the report 13 July 2004
Name and mailing address of the IPEA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA -mail address: pct@ipaustalia.gov.au -facsimile No. (02) 6285 3929	Authorized Officer  GREG POWELL Telephone No. (02) 6283 2308

**I. Basis of the report**

1. With regard to the elements of the international application:\*
- ☒ the international application as originally filed.
- ☐ the description, pages , as originally filed,  
pages , filed with the demand,  
pages , received on with the letter of
- ☐ the claims, pages , as originally filed,  
pages , as amended (together with any statement) under Article 19,  
pages , filed with the demand,  
pages , received on with the letter of
- ☐ the drawings, pages , as originally filed,  
pages , filed with the demand,  
pages , received on with the letter of
- ☐ the sequence listing part of the description:  
pages , as originally filed  
pages , filed with the demand  
pages , received on with the letter of
2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.  
These elements were available or furnished to this Authority in the following language which is:
- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).
3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:
- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished
4. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/fig.
5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).\*\*

\* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

\*\* Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

**1. Statement**

Novelty (N)	Claims 1-18	YES
	Claims	NO
Inventive step (IS)	Claims 1-18	YES
	Claims	NO
Industrial applicability (IA)	Claims 1-18	YES
	Claims	NO

**2. Citations and explanations (Rule 70.7)**

Claims 1-18 meet the criteria set forth in PCT Article 33(2)-(4) for novelty, inventive step and industrial applicability. The prior art published before the priority date does not disclose a temperature sensing method defined.

The closest prior art is considered to be US 5765948. As in the present claims, this document discloses a temperature sensing method in which pulses of light are launched from a semiconductor laser into a fibre and backscattered optical radiation is detected. A first signal is recorded at the anti-Stokes Raman wavelength, and a second signal is recorded at the Rayleigh wavelength. The quotient of these two signals is used to determine the temperature of the fibre's environment. However, US 5765948 does not disclose passing the backscattered radiation through a single optical filter. It also does not disclose recording the second signal using light that has been launched down the fibre by a laser diode operating in a light emitting diode mode. These two differences, taken together, allow a considerable simplification of the optical system of the prior art (which requires three filters and/or removal of filters to perform normalisation). Such an arrangement is not suggested by the prior art.